PROFESSIONAL ENGINEER

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County Engineers Solve The People's Problems

The Engineering Profession A Program of Service

Vol. 46 No. 1

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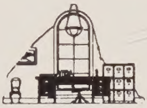

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M. E. McIVER, Editor

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W. W. DeBerard Honored

Colonel Walter R. Jeffrey, President, A.A.E., W. W. DeBerard, Member, A.A.E. No. 25, A. H. Krom, Member, No. 1, A.A.E.

The American Association of Engineers, presented to W. W. DeBerard, a certificate of merit last November 1st, to celebrate with congratulations and best wishes the Golden Anniversary of his professional engineering services in the City of Chicago.

Mr. DeBerard played a most important part in the early history of the American Association of Engineers and is still a staunch believer in its aims and ideals. Our best wishes go to him in his work with the Department of Water and Sewers, City of Chicago.

Professional County Engineers Solve The People's Problems

Pat Thomson, County Engineer
Douglas County, Wenatchee, Washington

The question has been raised that there are too many counties. Surely, there are small counties—some 162 that have a population of less than 10,000. But at the same time, there are over 9,000 cities that have a population of less than 1,000, and six states are so small as to have only one representative in Congress. It has been discovered that people do not want consolidated government other than in the realm of schools, for who can determine what is the ideal size of a local government unit? This depends entirely upon the function the unit is going to perform. There are 3,047 counties, and these units are the backbone of local government; however, counties must stand ready to defend and revoke the charge levied by the President's Commission on Intergovernmental Relations that there are too many local governments with too little government.

It is hard to personify county government, largely because there is no single head. Counties are operated policy-wise by boards of commissioners or supervisors, without a direct, year-in, year-out titular head. Probably the person most directly connected with the county constituents, and therefore more ethically involved in the development and betterment of the county, is the county engineer, for counties have the responsibility of almost three million miles of road, serving every citizen of the United States either directly or indirectly. D. E. Morris, president of Morris Construction Company, Tacoma, Washington, said that county business is big business and it must be handled as a business. Only about a quarter, 850 counties, have engineers, and the need for professional engineering talent in counties is decidedly pressing. The professional engineer, instead of being an expense, can soon prove that the efficiency of the road department operation will more than save his salary.

And so, from one side, the professional engineer has a duty, because people cannot be counted upon to act unless they see something in it for them. Seldom will people react to altruism or idealism. Sure-fire results are only obtained by showing them "What's in it for me." It is not enough for the professional county engineer to do what is right, as that may bring no claim to fame or glory, and the professional engineer must bring his qualities to the public in terms of their interest.

Note: Material for this article came from personal experience on several Washington State Association of County Engineers legislative committees, work at the legislative session, and general work as a county engineering administrator.

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At the end of a long day of studying perplexing problems, county engineer Pat Thomson closes his eyes in a moment of thought, contemplating what to do in the specific instance just covered.

In earlier years our counties were manned by engineers who had received their licenses under the grandfather clause. These men were rocking it out, without too great an attempt to better the engineering conditions of the state, and gradually, the ranks were infiltrated by the younger, college-trained engineer, who introduced new and better engineering methods. Now the state association has set up an implied code of ethics governing the conduct of member county engineers. We feel that engineering "morality" meant giving the people of the state of Washington the best possible service from its county road departments. Engineers must be held strictly accountable for their actions even under pressure, and must act with the greatest of prudence. Washington county engineering management has learned the hard way that both industrial and public relations are necessary to the success of their business, and we feel that we have a responsibility and are willing to meet any challenge presented.

Washington is one of the few states of the union that legislatively makes it mandatory for all counties, none excepted, to hire licensed professional engineers. This immediately cuts out clerks, for county engineers must pass a rigid test as required by the State License Board, composed chiefly of engineering professors from the two state universities. The young engineering graduate is not allowed to assume mature engineering responsibility immediately. He may take the examination at graduation and, if passing, become an engineering aid until such time as he has met the experience requirements of the law; therefore, Washington counties are now able to employ engineers who are capable of handling full scale engineering projects.

Because of this respective ability to handle all phases of engineering, boards of commissioners have become convinced that engineers are better equipped to handle all of the road department functions. Consequently, the two groups co-sponsored legislation placing both maintenance and construction under the professional county engineer. It is true, that there are some boards that still try to hold the function of maintenance under their individual jurisdiction, but their operation soon gives them away.

The district setup is anathema to efficiency. Washington county engineers strongly felt that the unit system of operation, with all equipment pooled and working under an equipment rental and revolving system, was necessary. Not only would this give greater flexibility, but it would eliminate the duplication of equipment required under the district organization, where each commissioner is a feudal barony of his own. Under the old regime, one small county with less than 400 miles of rural road, had three separate rock crushing units. In other instances, jealousy prevented the cooperative use of equipment in crossing district lines. This type of thinking was destructive to good management and costly to the taxpaying public. The engineers' strong advocacy of unit operation strictly under the head of the engineer was not only accepted, but has paid off in monetary dividends. The greater mileage of work obtainable has benefited every taxpayer in the State of Washington.

Other items were also necessary for local government to better utilize its road funds. The helter-skelter method of constructing roads in accordance with the pressure groups reaching the commissioners left a great deal to be desired. No sort of system could be counted upon, with each area trying to elect a commissioner each election year so that they could get their roads. Legislation of this type was passed, requiring the establishment of a ten year plan for construction with the required establishment of a county arterial system. The ten year planning has now run out, but counties have found it so feasible that when a six year planning failed to pass the legislature, counties adopted it voluntarily. Again the professional county engineers had pointed out the way to better county highway administration.

Engineering on such a system, to be of future use, must build to certain limits. Consequently, a committee of engineers and commissioners, at the urging of county engineers, prepared uniform state-wide designs standards. These standards set definite statistics for certain classifications of county road as determined by traffic count, and including curvature, grade, clearance, shoulder width, pavement width, and indicating minimums and maximums within each classification. Both the State Highway Department and the Bureau of Public Roads collaborated in the final design standards.

Lately, there has been unrest with these standards. Most engineers have complained that the standards are too low to satisfy their engineering demands. The Engineers' Association requested that these standards be revised upward so that waivers would not have to be obtained from the state to build a better class of road. A committee is now in the process of reviewing and revising these standards for presentation at our annual meeting. There is no doubt that the engineers will unanimously accept the higher ratings.

How do you tell if your operation is successful? Only if you can truly determine the cost per item of production. Consequently, engineers again requested a uniform cost accounting system so that all counties would be on comparative methods. From this, the various types of operation within the counties of similar geographical, climatic, and topographical conditions could be compared cost-wise. Should any one county be out of line, corrective steps could be taken in their operation as indicated.

Each item of equipment that works is now charged against the specific operation of construction or maintenance that is being performed. The rental rate charge is non-profit, but must include sufficient amount to cover supplies, repairs, overhead, and a depreciation reserve successfully replacing the item at the termination of its life. This system guarantees good equipment on hand at all times, and again benefits the taxpayer in that he is getting the most equipment production for his purchase expenditure.

The cost accounting is not so cumbersome as to require an out-sized expenditure in administration, but is of sufficient detail to give true cost figures. In construction, the cost per cubic yard of earth moved, lineal foot of pipe placed, yard of surfacing furnished and like items can be determined. In maintenance, shoulders and ditches, snow and ice control, are accurately recorded. In most instances, weekly posting of accounts will keep the engineer on top of even the toughest construction show, and should force account costs be out of line, the operation can be investigated quickly.

To insure that our cost accounting is accurately done, the equipment rental and revolving fund is audited yearly by the State Municipal Division of Corporations. Unwieldy practices, illegitimate use of funds, failure to properly account for expenditures, are all detected. The offending county is given opportunity to correct its faults. If it does not do so, authoritative steps are taken to enforce proper cost accounting.

Finally, most engineers don't feel that counties can afford to own the specialized equipment necessary for heavy earthwork and bridge construction, and that because of the equipment factor, construction is better done under contract. Therefore, most counties contract the greater portion of their work. In Douglas County, about 90% of our construction funds are in contracts, with only small items done under force ac-

County engineering probably gives the professional engineer more variety of engineering problems and conditions than any other position. This is typical of the solid rock excavation encountered in some of the more rugged construction jobs.

count labor. Legislation limits our force account allowance to projects under $25,000. Few of us can build one mile of road for that.

True professional engineers have taken over county management positions. As they have demonstrated their abilities to cope with all road department administrative problems, commissioners have been more than willing to relinquish responsibility to them. From some early unfortunate engineering experiences, commissioners could not be blamed for resisting some of the demands advanced by professional engineers. However, these engineers have now proved that they will fulfill their duties with the highest degree of integrity. County engineers have shown their willingness to wrestle with the toughest of problems, solving them, after constructive study, with the least cost. That has instilled a confidence not only with commissioners, but with the rural citizens of the state, and the profession of county engineering in the State of Washington now has a much higher standing. We are again an honorable profession and not a derided trade.

We welcome stories from our members about their work or their hobbies. Their suggestions as to the kind of articles they would like to see in "Professional Engineer," would be helpful. In the next issue, August 31st, we would like to publish as news, items of engineering interest relating to engineers or engineering projects.

The Engineering Profession

The engineering profession has lost a great man in the passing of Dr. David B. Steinman, who was known the world over for his great talent and ability as the "Builder of Bridges." Dr. Steinman served the American Association of Engineers in many capacities, and is best known for his work in professional ethics. He was a gifted writer, a man of vision, and a number of years ago set forth the aims and ideals of the Association in a clear and concise manner. What Dr. Steinman said then, may well be said today. He knew the Association and believed it had a place of service in Society. Therefore in memory of this great man, we reproduce here his article.

THERE have come down to us, through the centuries, the immortal words of Lord Bacon:

"Every man is a debtor to his Profession."

We want to make these words more than a mere phrase—we want to make them part of our working lives.

As we are benefiting by the Profession's heritage from the great engineers who labored in the past, we want to augment that heritage before passing it on to those who are to follow us.

Our inheritance is two-fold:

On the one hand, it consists of that vast store of scientific and technical knowledge that has been built up by the researches, inventions and discoveries of past generations of Scientists and Engineers. That is our technical heritage.

On the other hand, our inheritance consists of the public standing, confidence, and esteem, that have been won for our Profession by the character and achievements of the engineers who labored before us. It consists of the high professional traditions they have handed down to us to cherish and foster. It consists of the ideals of service and the high standards of professional honor upon which the public regard for our Profession is founded. All these things constitute our professional heritage.

To discharge our indebtedness to our technical heritage, we have our technical societies. To discharge our indebtedness to our professional heritage, we are the American Association of Engineers, founded in 1915 for the advancement of the non-technical interests of the Profession.

The American Association of Engineers came into existence in response to a definite need—a need for a nation-wide organization devoted to the common interests of all Engineers; a need for an organization devoted to the *human* side of the Engineering Profession; a need for an organization devoted to fostering unity, mutual consideration, and fraternal co-operation within the Profession; a need for an organization uniting Engineers of all sections of the country, of all branches of the Profession, of all ranks, of all ages, in a common cause; a need for an organization devoted to fostering professional consciousness, pride in the Profession, and recognition of individual obligation; a need for an organization interested in advancing the social and economic welfare of the individual Engineer; a need for an organization devoted to fostering the highest standards of professional honor and to making the established ethical standards part of the working life of Engineers; a need for an organization to represent all branches of the Profession in public relations activities; a need for an organization devoted to concerted effort for the advancement of the Profession in public recognition and esteem.

The American Association of Engineers is the only national organization devoted to the human side of the Engineering Profession. Its purpose is to bring Engineers together in a professional brotherhood—in mutual understanding, helpfulness, and cooperation. The advancement of this purpose alone is ample justification for the continued existence and growth of the Association.

Thousands of Engineers throughout the United States are banded together in this organization. We are uniting our efforts to make pleasanter the relations and working conditions within the Profession. We are seeking to relieve the Engineer of economic pressure so that his best energies may be free for his high service to civilization and human progress.

We are striving, through organized effort and publicity, to secure for the Engineering Profession its rightful place in public esteem, and for the members of that Profession more adequate recognition and recompense for their services to society.

A Program of Service

To attain these fundamental objectives, a broad-visioned, well-balanced program of Association activities must be logically developed, persistently adhered to, and energetically carried out. Such program, like any program for real accomplishment, must be predicated on the foundation principle of service. In our case it must comprise:

1. Service to the Public
2. Service to the Profession
3. Service to the Individual Engineer

We have before us a large program; it cannot be accomplished in a day, nor in a year. It cannot be accomplished by one man, nor by any small group of men. It demands the contribution of construction thought and whole-hearted support from all members of the organization.

Some flexibility must be maintained in our program of service to meet changing conditions and broadening conceptions. But certain objectives and activities will always stand out as fundamental, deserving and challenging our best thought and efforts for the good of our Profession.

To Educate the Public

The most far-reaching benefit to our Profession and to all of its members lies in increasing the appreciation and respect of the general public for our Profession.

This purpose can best be advanced through organized effort in the field of public education. We must use every channel of publicity, including the press, the radio, public assemblies and publications, to bring home to the public the outstanding value and supreme importance of the Engineers' service to modern civilization and human progress.

Without the trained mind of the Engineer, his constructive ingenuity, his practical resourcefulness, and his creative conception, we should not have our railways and our steamships, our bridges and our tunnels, our automobiles and our radio, our subways and our skyscrapers. We should not have our water supply systems, electric power, communication systems, manufacturing machinery, and transportation systems.

Engineering Is the Creative Profession

On no other class of men are we so dependent for our luxuries, our comforts, and even our necessities as we are upon the Engineer and his work.

The Engineer is one of the most highly trained, practical, efficient, hard-working, creative and indispensable servants of society.

The Engineer, of all professional men, is the greatest contributor to the economic progress and wealth of the community.

National Prosperity is Dependent on the Work of the Engineer

In this era of international economic competition, the wages of labor are ultimately determined by the efficiency of production, and national prosperity may be measured by the purchasing power of the workers' earnings. If American industries can compete in foreign markets while maintaining higher wages and shorter hours for our workers, that is only because of the greater efficiency of production in this country. This increased output of the individual worker represents the Engineer's contribution to industry. Through the development and extension of labor-saving machinery, the scientific planning of plants and processes, the introduction of the principles of efficiency in management, organization and operation, the Engineer has speeded up production, eliminated waste, and increased the output of the individual. The Engineer has thereby made possible the higher earnings, the shorter hours, and the higher purchasing power of the workers' wages,—all things that constitute the foundation of our national prosperity. *The community or nation that best develops and applies the brain power and inventive genius of the Engineer will be the most prosperous.*

Civilization Is Dependent on the Work of the Engineer

Public attention is often directed to the depletion and approaching exhaustion of some of the natural resources which we have come to regard as indispensable. We are told that the end of our coal supply is in sight, that our petroleum supply will soon be consumed, that our timber supply is rapidly vanishing. It is the work of the Engineer to prolong the availability of such fundamentally important natural resources through improvements in their economic utilization, through the scientific elimination of waste in production and in application, and through the opening and development of new sources of supply. It is the problem of the Engineer to anticipate the depletion of these natural resources by devising and developing new methods, processes and constructions that will dispense with the need for the materials and supplies that become scarce or prohibitive in cost. The Engineer's development of hydro-electric power has reduced our dependence upon coal for power generation. The Engineer's opening of petroleum supplies and his development of the internal combustion engine have further liberated us from our dependence upon coal. The Engineer's development of steel and reinforced concrete, successively, as structural materials has relieved our dependence upon timber for construction. To meet the problems of a diminishing supply, the Engineer is now developing railroad track ties of steel and concrete where timber has hitherto been considered indispensable. The Engineer is developing and applying alloy steels and new steels of vastly increased strength to reduce the amount of metal required in his structure. Long before the iron supply reaches the vanishing point, the Engineer will find effective substitutes; or he will have brought aerial transportation to such development as to dispense with the need of steel for rails and bridges. Civilization and human progress depend upon the resourcefulness and ingenuity of the Engineer to solve each successive problem of vanishing natural resources.

In almost every step of our daily lives, we benefit by the work of the Engineer.

Through the work of the Engineer, the luxuries of past generations have become the necessities of today.

The Engineer has done more to promote human comfort, wealth and safety than the members of all other professions combined have done since the world began.

All these things must be brought home to the general public, to the end that there may be better appreciation of the Engineer and his work.

Such constructive publicity constitutes an important part of our Association's program of service to the Profession.

Protection of Our Professional Title

An important activity for our Association is the protection of our professional title. The proper recognition of the engineer as a professional man, and of Engineering as a learned Profession, is retarded so long as the title of "engineer" is shared by non-professional men.

The designation "physician" and "lawyer" are distinctive for their respective professions. But the title "engineer" is commonly applied to men who operate steam engines or drive locomotives; and the resulting confusion and misunderstanding are further aggravated by the widespread and growing misappropriation of the designation "engineer," in multiplied hyphenated forms, by men who have no claim to an engineering title.

We find plumbers placing "Sanitary Engineer" on their signs. Electricians and bell-hangers style themselves "Electrical Engineers." We also read announcements of "domestic engineers," "clothing engineers," "exterminating engineers," "matrimonial engineers," and a hundred or more other kinds of engineers, none of whom need to know anything about engineering science and its application. A consequence of this unhindered and indiscriminate use of the title "engineer" is a weakening of its prestige and distinctive significance. The members of the Engineering Profession find that the use of their title "Engineer" does not invest them with the dignity and standing that are naturally possessed by the holders of other professional titles.

Through educational publicity, we must conduct a persistent campaign to discourage this abuse of our professional title.

Through registration laws, we must seek to restrict the use of the designation "Engineer."

We must bring the desired distinctions to the attention of the public through the press, and we must invite the newspapers to cooperate with us in confining the designation of "engineer" to professional men.

Engineers' Registration Laws

One great obstacle impeding public recognition of the Engineering Profession has been the lack of legal control of the practice of engineering.

Doctors and lawyers have to show evidence of proper training and qualifications before they are admitted to practice their respective professions; but until a few years ago, there were no laws preventing any man, however, unlettered or untrained, from hanging out a shingle and practicing as an Engineer.

To remedy this condition, A.A.E. has been active in initiating and sponsoring legislation for the licensing or registration of Engineers, and as a result of this pioneer work by American Association of Engineers, laws have been enacted in many of the States.

It is through such laws and their vigilant enforcement that the public welfare and the good name of the Profession can be protected from the practice of quacks and incompetents.

Our Association must continue its efforts to improve the effectiveness of the registration laws and to extend their enactment to other States. . . .

Some of the older engineering societies who were at first antagonistic are now joining our Association in favoring and supporting licensing legislation. It is the young engineer of today and the Engineers of the future who will reap the full benefits of the licensing legislation, which this Society has fought and worked for ever since its inception.

Professional Ethics

One of the outstanding activities of the American Association of Engineers for improving working conditions within the Profession has been the work of our Practice Committee. This work has commanded the attention and interest of the Profession, and has achieved for our Association a position of recognized leadership in the field of professional ethics.

In the early years of the Association, it was decided to undertake the work of studying the detail questions of ethics that arise in engineering practice. It was realized that the generalizations in the established codes of ethics of this Association and of other engineering societies needed to be supplemented by more specific definitions of ethical conduct. It was felt that such work lay peculiarly in the proper field of activity of the American Association of Engineers, since it is not a technical society but a national organization established to promote the welfare of the Engineer through collective efforts for the advancement of the standards and the standing of the Profession.

Accordingly a Practice Committee was formed to study and report rulings on individual questions of professional conduct submitted to it. Men of high standing and character served on this Committee in successive years, passing on the Practice Cases that were submitted, and recording their final decisions in printed form in the Association's publication, *Professional Engineer*.

When about forty of these Practice Cases were completed, many of them involving a multiplicity of ethics questions, the recorded principles were compiled in a working code for the guidance of Engineers. The resulting code of *"Specific Principles of Good Professional Conduct"* was adopted by the Association and received wide publicity in the Engineering press. These specific guiding principles, about fifty in number, are grouped under four main headings:

I. Relations of the Engineer to the Public.
II. Relations of the Engineer to Clients and Employers.
III. Relations of the Engineer to Employees.
IV. Relations of the Engineer to Other Engineers.

Realizing that the "Specific Principles" were a growing code and were capable of continued improvement, the Practice Committee has given further study to questions inadequately covered, and some amplifying revisions have been made.

Our Practice Committee has not been satisfied with the mere formulation of detailed rules of ethical conduct, but *has endeavored to bring the subject into the lives and thoughts of Engineers* by inviting and stimulating their discussion of the outstanding problems. Among the problems that have received such study and discussion, followed by the publication of articles recording the best opinions of the Profession, are:

1. The Problem of Professional Competition.
2. Solicitation of Professional Engagements.
3. The Problem of Underestimating.
4. The Problem of Inadequate Fees.

Through such activities our Association is striving to strengthen the professional spirit among Engineers and to promote the recognition of mutual obligation.

Such activities contribute toward making Engineering a nobler and more satisfactory profession for those who choose it as their life-work. We must ever keep before us the guiding principle that the most effective and enduring contribution to individual welfare is to be attained through cooperative effort for the advancement of the Profession as a whole.

Our Engineering Students

Service to the students in our Engineering Colleges and to those who contemplate the study of Engineering is an important activity for our Association. It constitutes both an obligation and an opportunity.

We want to impress upon every Engineering Student the thought that he is preparing to enter a brotherhood of professional men, with high ideals of service and of mutual obligation.

We have developed and inaugurated a special program of service to students along the lines of vocational guidance. The plan consists of publishing a series of articles, written by leading engineers in each branch of the Profession, for the information and advice of those who contemplate following Engineering as their life-work.

It is planned to print the collected series of these monographs in book-form, published by the Association, to be made available to engineering students and their teachers.*

Compensation of Engineers

One of the problems confronting the Profession is the fact that Engineers, as a rule, receive inadequate recompense for their high services to society.

From the viewpoint of the Engineer who has "arrived," there may be no cause for dissatisfaction with the returns from Engineering as a calling, but for the ninety and nine per cent who have not reached a position of financial security and independence, the picture looks quite different.

The American Association of Engineers is interested in the ninety-nine per cent as well as in the one per cent who have reached the top. As the only national organization devoted to the human side of the Engineering Profession, we must take cognizance of the prevailing conditions of under-compensation of Engineers and strive to remedy it through dignified effort and organized publicity.**

The general public does not know that the average Professional Engineer, notwithstanding his high investment of years and money in education and training, has to work for a salary lower than the wages of the average bricklayer, plasterer, or plumber.

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*This was done, and the book was entitled "Vocational Guidance in Engineering Lines" under the able guidance of the eminent Engineer, the late Dr. J. A. L. Waddell.

**If Dr. Steinman were writing this article today, he would call attention to the unfair and rather wide-spread discrimination on the part of many employers to hire engineers over forty. Dr. Wagner, as our members know, gave considerable time and thought to this unfair practice.

The general public does not know that Engineering—the one Profession that creates—the Profession that most enriches humanity—is at the bottom of the list of the professions from the standpoint of average earnings.

The general public does not know that many promising, capable Engineering students, when they learn the conditions awaiting them, abandon the study of their chosen life work to shift to more lucrative fields of preparation.

We must bring home to the public the inadequacy of the Engineers' earnings as a return for his high investment of years and money in the necessary professional training and preparation.

We must bring home to the public the inadequacy of the Engineer's compensation as a return for the high strain of responsibility under which he works, with the safety of many lives dependent upon his accuracy, skill and thoroughness.

We must bring home to the public the marked disparity that exists between the Engineer's invaluable services to civilization and human progress, and the returns he receives for those services.

Employment Service for Engineers

One of the activities of our Association that is designed to improve the economic status of the Engineer is the Employment Service, started almost the day the Association came into existence.

We must face the fact that the vast majority of Professional Engineers are employees, working for salaries; dependent for their livelihood upon the tenure of their "jobs"; subject to uncertainty of employment as a consequence of the temporary and fluctuating character of engineering work; and facing economic distress for themselves and their dependents in intervals between employment.

It is estimated that over 80 per cent, perhaps 90 per cent, of all Engineers are employees, working for wages; and only ten or 20 per cent of all Engineers are in independent private practice, working for professional fees. In this respect the Engineering Profession differs from others, like law and medicine, where private practice is the rule instead of the exception.

This established condition in the Engineering Profession is a natural consequence of the nature of engineering work; for that work generally involves large projects, requiring large organizations to handle them. And we must face this established condition, and strive to alleviate its effects. These effects are three-fold:

In the first place, the condition of the majority of Engineers as salaried employees removes them from direct personal contact with the public they serve. In the second place, the condition of the majority of Engineers as salaried employees tends to keep down the average level of compensation for Engineers. The only remedy is organized educational publicity, directed at public officials, corporation executives, and all who have charge of the employment of Engineers and the fixing of their rates of compensation.

In the third place, the condition of the Engineer as a salaried employee gives rise to the very serious social and economic problem of unemployment. There is scarcely an Engineer who has not faced this critical situation at one or more times in his career.

Unemployment is unquestionably the most serious problem facing the individual Engineer. To meet this problem, A.A.E. was the pioneer organization to establish an employment service for Engineers. The purpose of this service has been to help the Engineer find a new position when he is out of work, and to help the ambitious Engineer to better himself by locating work of larger opportunity and compensation.

Unemployment is an economic waste. By shortening the period of unemployment for the Engineer out of work, the Association renders a real service to the economic welfare of the individual, the Profession, and Society.

For the Future

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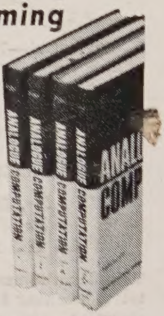

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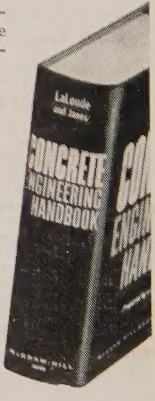

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